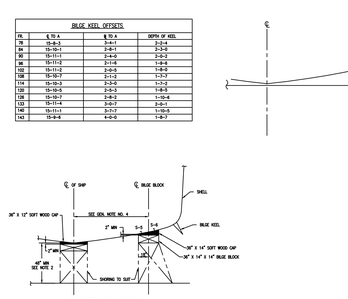
625
U.S. COAST GUARD
625

BILGE KEEL OFFSETS			
FR.	℄ TO A	COLLISION BHD. TO A	DEPTH OF KEEL
78	15-8-3	3-4-1	3-2-4
84	15-10-1	3-4-1	3-2-2
90	15-11-1	3-4-0	3-0-2
96	15-11-2	3-3-8	1-9-4
102	15-11-2	3-0-5	1-8-0
108	15-10-7	3-1-2	1-7-7
114	15-10-3	3-2-0	1-7-2
120	15-10-5	3-2-3	1-8-5
126	15-10-7	3-0-2	1-10-4
133	15-11-4	3-0-7	2-0-1
140	15-11-1	3-7-7	1-10-5
143	15-9-4	4-0-0	1-8-7



TYP SECTION THRU MIDSHIP
SCALE: 1/4" = 1'-0"

BLOCKING POSITION NO.1
TABLE OF OFFSETS FOR BILGE BLOCKS ON 8'-0" CENTERS

BILGE BLOCK NOS.	SIDE P/S	PAINT WEIGHT AT ℄ OF APP. ℄	POWER WEIGHT AT ℄ OF APP. ℄	FLOATING WEIGHT AT ℄ OF APP. ℄
1		2-0-3	2-3-3	2-4-0
2		2-3-1	2-9-0	3-0-7
3		2-7-2	3-11-0	3-2-4
4		2-0-1	2-3-1	2-1-3
5		1-8-5	1-10-1	2-1-5
6		1-3-1	1-7-0	1-10-7
7		1-1-7	1-5-5	1-9-6
8		1-1-5	1-5-5	1-10-0
9		1-3-1	1-8-4	2-1-4
10		1-6-3	2-1-1	2-7-5

BLOCKING POSITION NO.2
TABLE OF OFFSETS FOR BILGE BLOCKS ON 8'-0" CENTERS

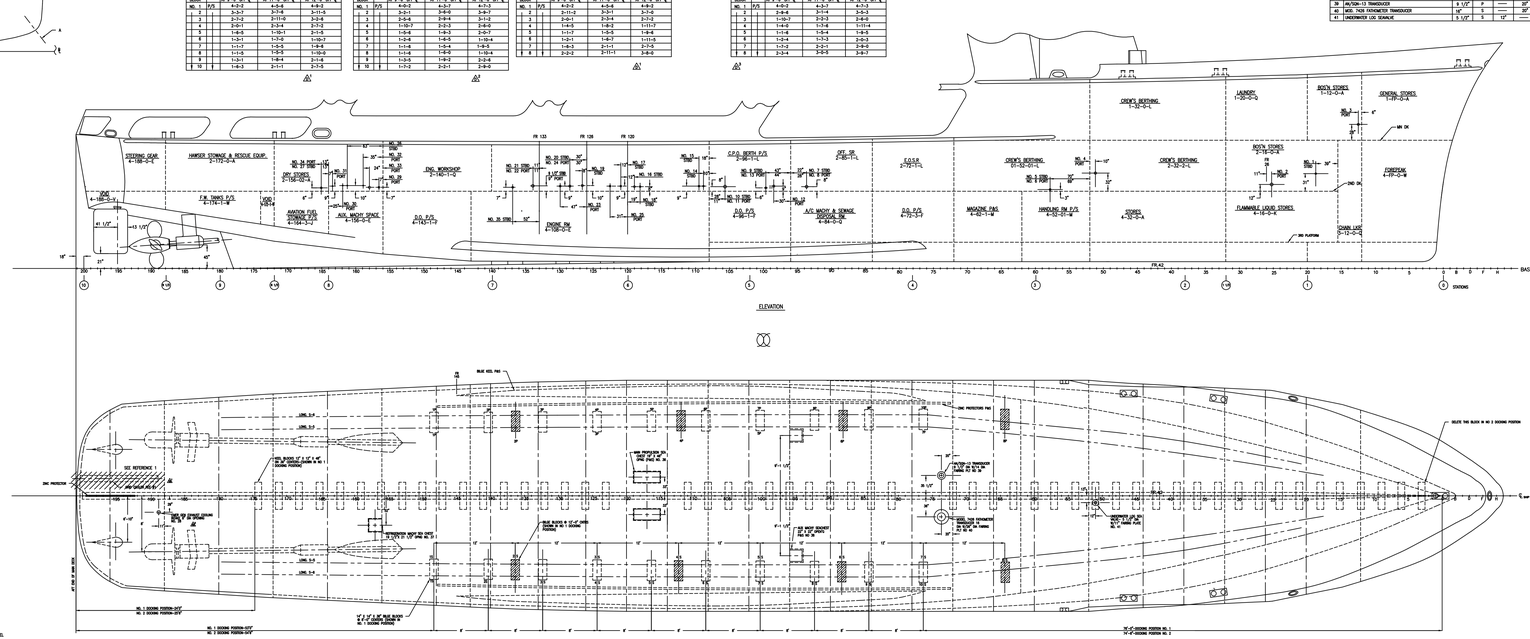
BILGE BLOCK NOS.	SIDE P/S	PAINT WEIGHT AT ℄ OF APP. ℄	POWER WEIGHT AT ℄ OF APP. ℄	FLOATING WEIGHT AT ℄ OF APP. ℄
1		2-0-3	2-3-3	2-4-0
2		2-3-1	2-9-0	3-0-7
3		2-7-2	3-11-0	3-2-4
4		1-10-7	2-3-3	2-1-3
5		1-10-6	1-10-3	2-0-7
6		1-3-6	1-4-5	1-10-4
7		1-1-4	1-3-4	1-8-3
8		1-1-4	1-4-0	1-10-4
9		1-3-3	1-9-2	2-2-4
10		1-7-2	2-2-1	2-9-0

BLOCKING POSITION NO.1
TABLE OF OFFSETS FOR BILGE BLOCKS ON 12'-0" CENTERS

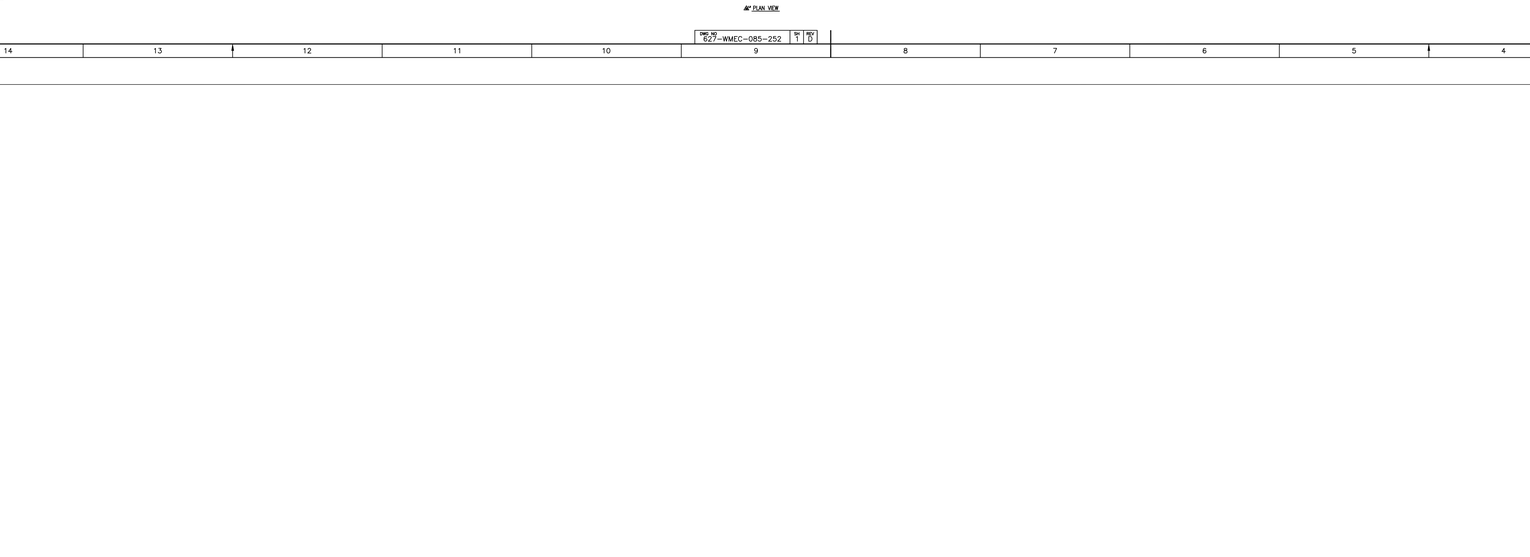
BILGE BLOCK NOS.	SIDE P/S	PAINT WEIGHT AT ℄ OF APP. ℄	POWER WEIGHT AT ℄ OF APP. ℄	FLOATING WEIGHT AT ℄ OF APP. ℄
1		2-0-3	2-3-3	2-4-0
2		2-3-1	2-9-0	3-0-7
3		2-7-2	3-11-0	3-2-4
4		2-0-1	2-3-1	2-1-3
5		1-8-5	1-10-1	2-1-5
6		1-3-1	1-7-0	1-10-7
7		1-1-7	1-5-5	1-9-6
8		1-1-5	1-5-5	1-10-0
9		1-3-1	1-8-4	2-1-4
10		1-6-3	2-1-1	2-7-5

BLOCKING POSITION NO.2
TABLE OF OFFSETS FOR BILGE BLOCKS ON 12'-0" CENTERS

BILGE BLOCK NOS.	SIDE P/S	PAINT WEIGHT AT ℄ OF APP. ℄	POWER WEIGHT AT ℄ OF APP. ℄	FLOATING WEIGHT AT ℄ OF APP. ℄
1		2-0-3	2-3-3	2-4-0
2		2-3-1	2-9-0	3-0-7
3		2-7-2	3-11-0	3-2-4
4		2-0-1	2-3-1	2-1-3
5		1-8-5	1-10-1	2-1-5
6		1-3-1	1-7-0	1-10-7
7		1-1-7	1-5-5	1-9-6
8		1-1-5	1-5-5	1-10-0
9		1-3-1	1-8-4	2-1-4
10		1-6-3	2-1-1	2-7-5



ELEVATION


BLUE KEEL PAD
ZINC PROTECTOR PAD
DELETE TWO BLOCK IN NO 3 DOCKING POSITION
SEE REFERENCE 1
ZINC PROTECTOR
BLUE BLOCKS IN NO 1 DOCKING POSITION
NO. 1 DOCKING POSITION
NO. 2 DOCKING POSITION
NO. 3 DOCKING POSITION
NO. 4 DOCKING POSITION
NO. 5 DOCKING POSITION
NO. 6 DOCKING POSITION
NO. 7 DOCKING POSITION
NO. 8 DOCKING POSITION
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NO. 29 DOCKING POSITION
NO. 30 DOCKING POSITION
NO. 31 DOCKING POSITION
NO. 32 DOCKING POSITION
NO. 33 DOCKING POSITION
NO. 34 DOCKING POSITION
NO. 35 DOCKING POSITION
NO. 36

OBJECTIVE:
The objective of this calculation is to determine the amount of keel deflection of the USCGC VENTUROUS.

PROCEDURE:
1. A preliminary dive was made to confirm the shape of the hull in way of the clamps that are necessary to attach to the hull for this survey.

2. The loading of the ship was confirmed by the vessel's crew and compared to the ship's fore and aft drafts to ensure accuracy. The 210' WMECs do not have midship draft marks.

3. Clamps were attached to the hull at pre-determined spots on the keel. The forward clamp was affixed on the keel at approximately Frame 5. The aft one was affixed as far aft on the skeg as possible. Specific locations were determined on the preliminary dive. The aft clamp was the dead end of the wire. The forward clamp had a 10-pound weight rigged to maintain tension. Johnson Worldwide Associates "Spider Wire" was used to "pull the wire." Spider Wire was used because it is nearly neutrally buoyant and minimized the catenary due to buoyancy.

4. The offset of the wire from the keel was measured and recorded at the forward and aft brackets. Tolerance on all measurements was 1/16".

5. Measurements from the wire to the hull were taken approximately every two feet.

6. After the measurements were taken and recorded, they were checked for any discrepancies or erroneous readings. Any suspect readings were rechecked to confirm the value.

7. After readings were determined to be correct, the brackets were removed.

8. Readings were then recorded in table form as well as results, to include the reading number, frame number, measured distance, and the actual calculated deflection.

MEASUREMENT EQUIPMENT DATA

WIRE:
Description: Johnson Worldwide Associates Inc. Spider Wire

Diameter: 0.02 inches (approx)
Breaking Strength: 50 lbs.
Weight in air: 1 x 10-4 lb/ft (approx)
Rise/Sink Rate: Negligible
Weight in water: N/A

Note: If Rise/Sink rate is less than .25 in/sec weight in water is not required

WEIGHT:
Description: Lead divers weight
Weight in air: 10 lbs
Weight in water: 9 lbs

LOADING CONDITION

Observed Condition:	Ft - In
Keel Draft Fwd.	9' 11"
Keel Draft Aft	11' 3"
Trim:	1' 4"
List:	Negligible

Loading Calculations: See Fuel Oil and Water Report.

USCGC Venturous (WMEC-625)
Fuel Oil and Water Report

May 16, 2002

Diesel Fuel

Tank	Level	Gallons	% Full	Contents	Date Filled
4-62-0-F	0"	0	0.0%	Ballast	Apr-02
4-72-1-F	3' 3"	1739	94.3%	MGO	Apr-02
4-72-2-F	3' 0"	1508	81.7%	MGO	Apr-02
4-72-3-F	6' 11"	3635	61.7%	MGO	Mar/Apr-02
4-72-4-F	9' 0"	4863	82.6%	MGO	Mar/Apr-02
4-84-1-F	3' 4"	1948	95.5%	MGO	Apr-02
4-84-2-F	3' 2"	1823	89.4%	MGO	Apr-02
4-96-4-F	10' 4"	6322	96.2%	MGO	Apr-02
4-96-5-F	10' 5"	6468	98.4%	MGO	Apr-02
4-143-1-F	7' 0"	5550	91.4%	MGO	Mar-02
4-143-2-F	5' 8"	4700	77.4%	MGO	Mar-02
Total		38556	75.7%		

JP5 Tanks

Tank	Level	Gallons	% Full	Contents	Date Filled
4-164-1-J	4' 5"	673	71.2%	JP-5	Apr-02
4-164-2-J	3"	25	1.0%	JP-5	Apr-02
4-164-3-J	2' 9"	700	46.1%	JP-5	Apr-02
Total		1398	27.4%		

Lubricating Oil

Tank	Level	Gallons	% Full
4-96-2-F	11' 4"	737	36.1%
4-191-1-F	2' 0"	205	86.9%
4-191-2-F	2' 0"	203	86.0%

Waste Oil

Tank	Level	Gallons	% Full
4-96-1-F	0"	0	0.0%
4-96-3-F	2"	33	2.2%
4-143-01-F	0"	0	0.0%
Total		33	1.2%

Potable Water

Tank	Level	Gallons	% Full
4-172-0-W	3' 3"	3030	46.8%
4-174-1-W	3' 8"	2460	94.2%
4-174-2-W	6' 0"	2433	93.2%
Total		7923	67.8%

Other tanks and voids

Tank	Level	Gallons	% Full
4-FP-0-W	12' 10"	4046	66.5%
4-172-1-V	0"	0	0.0%
4-172-2-V	0"	0	0.0%

	Diesel	JP5	Water	Oily Waste	9250	2110	10w30
Totals	38556	1398	7923	33	737	203	205
% of maximum	75.7%	27.4%	67.8%	1.2%	36.1%	86.0%	86.9%
Gallons needed 95%	10328	3456	3186		1205	33	31
Water distilled			0				
Used meter	0	0			0		
Used sounding	0		0			0	0

	Diesel	JP-5	Water
Total Remaining	38556	1398	7923
% remaining	75.7%	27.4%	67.8%
Used last 24 hrs	0	0	0

GM = 2.05081
Trim = -0.23616 By Bow
Disp = 1091.326 LT

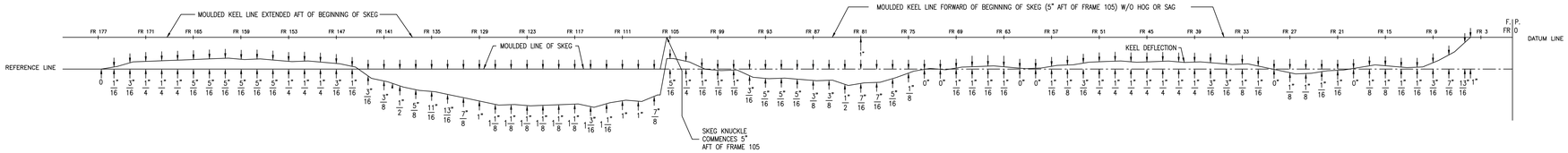
FWD Draft = 10.047
AFT Draft = 11.311

USCGC VENTUROUS Keel Deflection Readings
(All Measurements are in Inches)

Rdg #	Distance fm aft clamp	Frame Dist fm FP		Reading To Keel	Correction Keel Offset Straight Line	Corrected Measurement Fm 1 In	Skeg Thickness Correction	Corrected Measurement Keel Deflection Fm Skeg Ext	Correction Skeg Offset	Corrected Measurement Baseline Deflection
1	0	176.6	2 1/8	2.125	0.000	0.000	0	0.000		
2	2	174.6	2 3/16	2.117	0.070	0.012	0.082	0.082		
3	4	172.6	2 5/16	2.109	0.203	0.023	0.227	0.227		
4	6	170.6	2 5/16	2.101	0.211	0.035	0.246	0.246		
5	8	168.6	2 5/16	2.093	0.219	0.046	0.266	0.266		
6	10	166.6	2 5/16	2.085	0.227	0.058	0.285	0.285		
7	12	164.6	2 5/16	2.077	0.235	0.070	0.305	0.305		
8	14	162.6	2 5/16	2.069	0.243	0.081	0.325	0.325		
9	16	160.6	2 5/16	2.061	0.251	0.093	0.344	0.344		
10	18	158.6	2 1/4	2.053	0.197	0.104	0.301	0.301		
11	20	156.6	2 1/4	2.045	0.205	0.116	0.321	0.321		
12	22	154.6	2 3/16	2.037	0.150	0.128	0.278	0.278		
13	24	152.6	2 1/8	2.029	0.096	0.139	0.235	0.235		
14	26	150.6	2 1/8	2.021	0.104	0.151	0.255	0.255		
15	28	148.6	2 1/16	2.013	0.049	0.163	0.212	0.212		
16	30	146.6	2	2.005	-0.005	0.174	0.169	0.169		
17	32	144.6	1 7/8	1.997	-0.122	0.186	0.063	0.063		
18	34	142.6	1 1/2	1.989	-0.489	0.197	-0.292	0	-0.292	
19	36	140.6	1 3/8	1.981	-0.606	0.209	-0.397	0	-0.397	
20	38	138.6	1 3/16	1.973	-0.786	0.221	-0.565	0	-0.565	
21	40	136.6	1 1/16	1.965	-0.903	0.232	-0.671	0	-0.671	
22	42	134.6	1	1.957	-0.957	0.244	-0.714	0	-0.714	
23	44	132.6	7/8	1.949	-1.074	0.255	-0.819	0	-0.819	
24	46	130.6	3/4	1.941	-1.191	0.267	-0.924	0	-0.924	
25	48	128.6	5/8	1.933	-1.308	0.279	-1.030	0	-1.030	
26	50	126.6	1/2	1.925	-1.425	0.290	-1.135	0	-1.135	
27	52	124.6	1/2	1.917	-1.417	0.302	-1.116	0	-1.116	
28	54	122.6	7/16	1.910	-1.472	0.313	-1.159	0	-1.159	
29	56	120.6	7/16	1.902	-1.464	0.325	-1.139	0	-1.139	
30	58	118.6	7/16	1.894	-1.456	0.337	-1.119	0	-1.119	
31	60	116.6	7/16	1.886	-1.448	0.348	-1.100	0	-1.100	
32	62	114.6	5/16	1.878	-1.565	0.360	-1.205	0	-1.205	
33	64	112.6	7/16	1.870	-1.432	0.371	-1.061	0	-1.061	
34	66	110.6	1/2	1.862	-1.362	0.383	-0.979	0	-0.979	
35	68	108.6	7/16	1.854	-1.416	0.395	-1.021	0	-1.021	
36	70	106.6	5/8	1.846	-1.221	0.406	-0.814	0	-0.814	
37	72	104.6	13/16	1.838	-0.088	0.418	0.330	1	-0.670	
38	74	102.6	1 5/8	1.830	-0.205	0.430	0.225	1	-0.775	
39	76	100.6	1 3/8	1.822	-0.447	0.441	-0.006	1	-1.006	
40	78	98.6	1 5/16	1.814	-0.501	0.453	-0.048	1	-1.048	
41	80	96.6	1 5/16	1.806	-0.493	0.464	-0.029	1	-1.029	
42	82	94.6	1 1/16	1.798	-0.735	0.476	-0.259	1	-1.259	
43	84	92.6	1	1.790	-0.790	0.488	-0.302	1	-1.302	
44	86	90.6	1	1.782	-0.782	0.499	-0.283	1	-1.283	
45	88	88.6	15/16	1.774	-0.836	0.511	-0.326	1	-1.326	
46	90	86.6	7/8	1.766	-0.891	0.522	-0.368	1	-1.368	
47	92	84.6	7/8	1.758	-0.883	0.534	-0.349	1	-1.349	
48	94	82.6	11/16	1.750	-1.062	0.546	-0.517	1	-1.517	
49	96	80.6	3/4	1.742	-0.992	0.557	-0.435	1	-1.435	
50	98	78.6	3/4	1.734	-0.984	0.569	-0.415	1	-1.415	

USCGC VENTUROUS Keel Deflection Readings (cont.)
(All Measurements are in Inches)

Rdg #	Distance fm aft clamp	Frame Dist fm FP		Reading To Keel	Correction Keel Offset Straight Line	Corrected Measurement Fm 1 In	Skeg Thickness Correction	Corrected Measurement Keel Deflection Fm Skeg Ext	Correction Skeg Offset	Corrected Measurement Baseline Deflection
51	100	76.6	7/8	1.726	-0.851	0.580		-0.270	1	-1.270
52	102.3	74.4	1 1/16	1.717	-0.654	0.594		-0.061	1	-1.061
53	104.3	72.4	1 1/8	1.709	-0.584	0.605		0.021	1	-0.979
54	106.3	70.4	1 1/16	1.701	-0.638	0.617		-0.021	1	-1.021
55	108.3	68.4	1 1/8	1.693	-0.568	0.629		0.061	1	-0.939
56	110.3	66.4	1 1/8	1.685	-0.560	0.640		0.080	1	-0.920
57	112.3	64.4	1 1/8	1.677	-0.552	0.652		0.100	1	-0.900
58	114.3	62.4	1 1/16	1.669	-0.606	0.663		0.057	1	-0.943
59	116.3	60.4	1	1.661	-0.661	0.675		0.014	1	-0.986
60	118.3	58.4	1	1.653	-0.653	0.687		0.034	1	-0.966
61	120.3	56.4	1 1/16	1.645	-0.583	0.698		0.116	1	-0.884
62	122.3	54.4	1 1/16	1.637	-0.575	0.710		0.135	1	-0.865
63	124.3	52.4	1 1/8	1.629	-0.504	0.721		0.217	1	-0.783
64	126.3	50.4	1 1/8	1.621	-0.496	0.733		0.237	1	-0.763
65	128.3	48.4	1 1/8	1.613	-0.488	0.745		0.257	1	-0.743
66	130.3	46.4	1 1/16	1.605	-0.543	0.756		0.214	1	-0.786
67	132.3	44.4	1 1/16	1.597	-0.535	0.768		0.233	1	-0.767
68	134.3	42.4	1 1/16	1.589	-0.527	0.779		0.253	1	-0.747
69	136.3	40.4	1	1.581	-0.581	0.791		0.210	1	-0.790
70	138.3	38.4	1	1.573	-0.573	0.803		0.229	1	-0.771
71	140.3	36.4	15/16	1.565	-0.628	0.814		0.187	1	-0.813
72	142.3	34.4	7/8	1.557	-0.682	0.826		0.144	1	-0.856
73	144.3	32.4	7/8	1.549	-0.674	0.837		0.163	1	-0.837
74	146.3	30.4	3/4	1.541	-0.791	0.849		0.058	1	-0.942
75	148.3	28.4	5/8	1.533	-0.908	0.861		-0.048	1	-1.048
76	150.3	26.4	1/2	1.525	-1.025	0.872		-0.153	1	-1.153
77	152.3	24.4	1/2	1.517	-1.017	0.884		-0.133	1	-1.133
78	154.3	22.4	9/16	1.509	-0.947	0.896		-0.051	1	-1.051
79	156.3	20.4	9/16	1.501	-0.939	0.907		-0.032	1	-1.032
80	158.3	18.4	5/8	1.493	-0.868	0.919		0.050	1	-0.950
81	160.3	16.4	11/16	1.485	-0.798	0.930		0.132	1	-0.868
82	162.3	14.4	5/8	1.477	-0.852	0.942		0.090	1	-0.910
83	164.3	12.4	9/16	1.469	-0.907	0.954		0.047	1	-0.953
84	166.3	10.4	9/16	1.461	-0.899	0.965		0.066	1	-0.934
85	168.3	8.4	3/4	1.453	-0.703	0.977		0.273	1	-0.727
86	170.3	6.4	1	1.445	-0.445	0.988		0.543	1	-0.457
87	172.3	4.4	1 7/16	1.438	0.000	1.000		1.000	1	0.000


MOULDED KEEL LINE EXTENDED AFT OF BEGINNING OF SKEG
MOULDED KEEL LINE FORWARD OF BEGINNING OF SKEG (5" AFT OF FRAME 105) W/O HOG OR SAG
MOULDED LINE OF SKEG
KEEL DEFLECTION
REFERENCE LINE
DATUM LINE
F.P. FR 0
SKEG KNUCKLE COMMENCES 5" AFT OF FRAME 105

KEEL PROFILE
(AS MEASURED 5-16-2002)
HORIZONTAL SCALE: 1/4" = 1'
VERTICAL SCALE: FULL (1" = 1")

UNITED STATES COAST GUARD WASHINGTON, D.C. 20593
OFFICE OF NAVAL ENGINEERING
210' WMEC "B" CLASS
DOCKING PLAN

SIZE	FSCM CAGE NO	U.S.C.G. DRAWING NO.	REV
H	81340	627WMEC-085-252	C
SCALE AS NOTED		13.0 SQ FT	SHEET 2 OF 2

DWG NO 627WMEC-085-252 SH 2 REV C